

What is claimed is:

1. A cathode material for an electron beam apparatus, the cathode material consisting essentially of:

a rare earth metal of the cerium group comprising 0.5% to 9.0% of the total weight of the cathode material;

at least one element selected from the group consisting of tungsten and rhenium, comprising 0.5% to 15.0% of the total weight of the cathode material;

carbon comprising 0.5% to 10% of the total weight of the cathode material; and
iridium.

2. The cathode material of claim 1, with the rare earth metal of the cerium group being at least one element selected from the group consisting of lanthanum, cerium, praseodymium, neodymium and samarium.

3. The cathode material of claim 1, with the carbon content being 2% to 5% by weight based on the total weight of the cathode material.

4. The cathode material of claim 1, with about 6% by weight of a rare earth metal of the cerium group, about 5% by weight of tungsten or rhenium or both tungsten and rhenium, and about 3% by weight of carbon, based on the total weight of the cathode material.

5. A cathode material for an electron beam apparatus, comprising:

a rare earth metal of the cerium group;

at least one element selected from the group consisting of tungsten and rhenium;

carbon of about 0.5% to about 10% of the total weight of the cathode material; and

iridium.

1 6. The cathode material of claim 5, with the rare earth metal of the cerium group of
2 about 0.5% to about 9.0% of the total weight of the cathode material.

1 7. The cathode material of claim 6, with the carbon content being about 2% to about
2 5% by weight based on the total weight of the cathode material.

1 8. The cathode material of claim 6, with at least one element selected from the group
2 consisting of tungsten and rhenium comprising about 0.5% to about 15.0% of the total weight of
the cathode material.

 9. The cathode material of claim 8, with the carbon content being about 2% to about
5% by weight based on the total weight of the cathode material.